

14. (New) A ballistic armor panel as in Claim 1, in which the hard material of the board is steel.

15. (New) A ballistic armor panel as in Claim 1, in which the hard material of the board is titanium.

A2 16. (New) A ballistic armor panel as in Claim 1, in which the hard material of the board is a ceramic composition.

17. (New) A ballistic armor panel as in Claim 1, in which the hard material of the body is a ceramic composition.

18. (New) A ballistic armor panel as in Claim 1, in which the hard material of the body is silicon carbide.

19. (New) A ballistic armor panel as in Claim 1, wherein adjoining sides of the bodies inserted in adjoining polygonal apertures are parallel to each other and separated by aperture wall having thickness of about 0.5 to 1 mm.

REMARKS

In Office Action mailed on February 12, 2002, the Examiner rejected claims 1-3, 5, 6, 9 and 10 under 35 U.S.C.102(b) as anticipated by Michel (FR 2526535), claims 1-5, 8, 9 and 12 as anticipated by Davis (US43076140), and claims 1 and 2 as anticipated by Skelton (EP0151011). Applicants appreciate the time and consideration provided by the examiner in reviewing this application, however, respectfully traverse the rejection of the claims at least for the following reasons.

An armor panel in accordance with the present application is formed by a carrying board of metal or a composite material, having an array of apertures in each of which is socketed a ceramic body. In order to be effective, a ballistic armor panel must be capable of arresting a bullet or projectile within a short distance, this being the thickness of the panel. Should the armor permit the bullet to continue to travel, it has not succeeded in carrying out its proper function. Even though the ceramic body of the present invention is of short length, it cannot be penetrated by a high velocity bullet, for when the bullet impacts on the ceramics its impact force is distributed throughout the ceramic body and dissipated thereby. The advantage gained by a carrying board having a honeycomb form with an array of polygonal apertures in each of which is nested a polygonal body as claimed on amended claim 1, is that the bodies may be arranged in close proximity to each other and have no big spaces therebetween which may give way to a

bullet to penetrate the armor. The advantage is expressly claimed in claim 19 in which each side of an adjacent body is parallel and close to the corresponding side of an adjacent body so that there is little space in between. In fact, they are separated only by the aperture wall which has thickness of about 0.5-1mm (page 4, lines 3-4 of the specification). In contrast, in an arrangement with circular apertures and cylindrical bodies, there is a substantial space between the arcuate surfaces of the adjacent bodies.

Rejection under 35 U.S.C. 102(b)

Anticipation under 35 U.S.C. 102 requires that each and every claimed feature be disclosed by a single prior art reference. Therefore, the prior art reference relied upon by the Examiner must disclose an article that is reasonably identical to and includes at least every material element of the claimed ballistic armor panel. Applicant respectfully submits that none of the cited references disclose, let alone suggest, each and every claimed feature of the subject invention.

MICHEL discloses a metal plate 11 with circular apertures 12 which receive cylindrical ceramic elements 13, as shown for example in FIGS. 1, 4, 7. There is no teaching or suggestion by Michel of a carrying board having a honeycomb shape with polygonal apertures, each aperture receiving a polygonal element, as claimed in amended claim 1, which incorporates limitations of originally filed claims 4 and 5, now cancelled.. Claims 6, 9 and 10 depend on Claim 1, and therefore are not anticipated by Michel.

DAVIS describes a laminated article, or panel module 9, comprising a plurality of abrasive resistant ceramic tiles 10 secured to a cushioning support 11 to form a cover for an area subject to abrasion, or a tile liner for a floor or chute to provide a sliding contact with abrasive aggregates. (Col. 1, lines 10-20). It does not teach a ballistic armor panel, or a carrying board having a honeycomb board made of hard metal or composite material having a plurality of apertures with inserted hard bodies to prevent impact from a bullet. The tiles 10 of Davis are bonded to a cushion support 11. In fact, numeral 13 indicates not a carrying board as suggested by the examiner, but rather a space between the tiles, which may be filled with polyurethane, not hard metal. It is obvious that Davis does not teach or suggest an attachable armor panel with apertures, since it is directed to a totally different field.

SKELTON et al. describes a steel plate having a plurality of interference halls with inserted pins, or balls to prevent *drilling with carbide-tipped drills*. There is no teaching nor suggestion of a ballistic armor panel attachable to an object in order to protect it from an impact of a high velocity bullet, the panel having a carrying board of a *honeycomb* shape and an array of *polygonal* apertures, each aperture receiving a corresponding *polygonal* element, as claimed in amended claim 1 of the present application. Therefore, independent claim 1 as amended, and dependent claim 2 are not anticipated by Skelton et al.

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Since none of the references discloses a ballistic armor panel with a carrying board of a honeycomb shape having a plurality of polygonal apertures, each aperture receiving a body of corresponding polygonal shape made of hard material and having a longitudinal axis coaxial with an axis of a respective aperture, the present invention is not anticipated by cited prior art.

Rejection under 35 U.S.C. 103(a)

The Examiner rejected claims 7, 11 and 13 as unpatentable under 35 U.S.C. 103(a).

Since no citation teaches or suggests a ballistic armor panel with a carrying board of a honeycomb shape having a plurality of polygonal apertures, each aperture receiving a hard body of corresponding polygonal shape, it is respectfully submitted that the pending claims depending on Claim 1 as amended by this amendment are not obvious in view of any of the cited references or their combination, and, accordingly, that the application as amended complies with 35 U.S.C. 103.

By this Amendment, applicants canceled claims 2, 3, 4, and 5 without prejudice, and amended claim 1 incorporating limitations of cancelled claims 4 and 5, and added new claims 14-18, which are fully supported by the specification, page 3, lines 26-27 and page 4, lines 10-11.

DEPENDENT CLAIMS.

It is submitted that all of the pending dependent claims, including newly added claims 14-17, are novel and inventive as based on an novel independent claim 1. Applicants respectfully submit that the pending claims as amended and added by this Amendment are allowable over the prior art and the application is in condition for allowance.

The Commissioner is hereby authorized to charge any additional fees which may be required in this application under 37 C.F.R. §§1.16-1.17 during its entire pendency, or credit any overpayment, to Deposit Account No. 06-1135. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 06-1135.

Respectfully submitted,

4/12/02
(Date)

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

1. (Amended) A ballistic armor panel for attaching to an object, the panel comprising a carrying board having a honeycomb form made of a hard metal or composite material [and] formed with a plurality of adjoining through-going polygonal apertures, each aperture receiving a body having a corresponding polygonal shape made of a hard material and having a longitudinal axis coaxial with an axis of the respective aperture.



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